

Claims

1. A metal halide lamp comprising an arc tube that includes:

5 a pair of electrode structures, each of which has an electrode at a tip;

a main tube part made of polycrystalline alumina ceramic, and containing a discharge space in which the electrodes of the electrode structures are located to 10 oppose each other; and

a pair of thin tube parts that connect from the main tube part and are sealed by respective sealing members with the electrode structures inserted therein, wherein

$20 \leq WL \leq 50$, $EL/Di \geq 2.0$, and $0.5 \leq G \leq 5.0$ are satisfied,

15 where tube wall loading of the arc tube is $WL(W/cm^2)$, a distance between the electrodes is $EL(mm)$, an inner diameter of the main tube part is $Di(mm)$, and a crystal grain diameter of the polycrystalline alumina ceramic is $G(\mu m)$.

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2. The metal halide lamp of Claim 1, wherein

the crystal grain diameter $G(\mu m)$ of the polycrystalline alumina ceramic satisfies $0.5 \leq G \leq 1.5$.

3. The metal halide lamp of Claim 1, wherein
the inner diameter D_i (mm) of the main tube part
satisfies $2.0 \leq D_i \leq 10.0$.

5 4. The metal halide lamp of Claim 1, wherein
the polycrystalline alumina ceramic contains
magnesium oxide (MgO) of 200ppm or below.

5. The metal halide lamp of Claim 1, wherein
10 the polycrystalline alumina ceramic has
transmittance of 94% or more.